WHITE PAPER

# HOW THE NETWORK FUELS ECONOMIC DEVELOPMENT IN STATE AND LOCAL GOVERNMENTS

**Economic development, a top priority for state and local governments, flourishes in communities that provide educational excellence, effective government-to-business services that attract business investment, and safe environments. The challenge is achieving these goals without increasing operational costs. State and local governments around the world are driving economic development today, using advanced network technologies.**

## EXECUTIVE SUMMARY

Economic development is critical for a community to prosper. State and local governments must continually seek innovative ways to attract more people to live, work, learn, and spend in their communities.

Success stories abound. For example, to increase educational excellence, Charles County Public School System in Maryland is creating more classroom time for teachers by installing IP phones with integrated displays in each classroom, reducing the time teachers spend reporting attendance, looking up student information, and even ordering supplies. Improving academic excellence makes the community a more attractive place to live. The Humberside Police Department in the United Kingdom has enhanced citizen safety, as a result of its ability to send real-time video of incidents directly from helicopters to first responders. Similarly, the Town of Herndon, Virginia delivers AMBER Alerts to employees' IP phones, increasing the number of people on the lookout for abductors. The City of Greensboro, North Carolina equips building inspectors with wireless devices they can use to retrieve documents on the spot, expediting the inspection process and thereby encouraging residential and commercial development. The city of Fredericton, capital of Canada's province of New Brunswick, offers a free, citywide wireless network to enhance its citizens' quality of life and to promote tourism.

This paper explains how state and local governments around the world are harnessing network technologies to drive economic development. Their strategies include increasing educational excellence, attracting business investment, and expanding the skilled workforce—ultimately improving quality of life.

## FOSTERING EDUCATIONAL EXCELLENCE

### Enhancing Classroom Curricula

Excellent K–12 schools, community colleges, and universities attract residents and businesses to a community and help develop a skilled local workforce. One way that schools achieve excellence is by enhancing classroom curricula with network technologies such as live, interactive video and video on demand, both delivered over the network directly to the classroom. Live video enables schools to "bring the world into the classroom" with interactive presentations from the field—the ecology of salt marshes is more engaging for students when presented via live, interactive video from a scientist on location. Live video also makes it possible to offer courses to students in schools that otherwise might not have sufficient enrollment to make a course economically viable. If an advanced mathematics or language course is offered in even one school in the district, any number of students in other schools can participate fully via live video and interaction. Richer course offerings further increase the appeal of the community to families with children. Video on demand provide supplemental instruction to students with special needs who need more time to master a concept, as well as to students who would benefit from enrichment.

The network also creates opportunities for collaboration with students in other classrooms, other schools, or even other countries. For example, students in a school in Milford, Massachusetts use videoconferencing to collaborate with their peers in a school in the Blackpool Local Education

Authority in the United Kingdom to compare the effects of the industrial revolution on their respective towns. These two local governments not only are enriching education, they're also preparing their youngest citizens for the collaborative environment they'll encounter when they enter the workforce—preferably in the same community that provided their education.

The network also helps strengthen the community at the university level. Leading-edge technology helps schools retain technology-savvy researchers and teachers, as well as attracting more students to apply and study—and the student population feeds town and city economies. California State University, Monterey Bay, contributed more than $100 million to local city economies in 2003 alone. Colleges and universities further the goal of educational excellence by providing students and faculty with wired and wireless Internet connectivity and advanced voice and data services anywhere on campus. Wireless access also improves research environments by enabling researchers to access databases from the field.

After graduation, college students tend to remain in the same community, a significant factor in the economic development of Silicon Valley, which has access to graduates of University of California at Berkeley, Stanford, and San Jose State University, and of Boston's Silicon Corridor, which has built much of its industry on the talents of Boston-area college and university graduates. To align high school and college course offerings with local industry needs, community colleges and universities can offer professional development activities on the design and implementation of online curriculum systems. At the request of local businesses, teachers and professors who receive this training can develop online classes teaching skills that are in demand.

### Improving Efficiency of Teachers and Staff

Educational excellence arises not only from an enhanced curriculum, but also from classroom time. Reducing the time that teachers need to spend with administrative chores such as taking attendance and looking up student records, creates time they can devote to teaching.

With IP phones, which combine voice with built-in displays that teachers and staff can use to send and receive information, schools can save time and improve communications with parents, teachers, and school management. The Charles County Public School System, located near Washington D.C. and serving 25,000 students in 31 schools, is an example. Charles County is in the process of installing IP phones in every classroom to save time and improve safety. For instance, a simple application on the IP phone lets Charles County teachers take attendance, look up student information, locate students, summon emergency help, and order supplies. The IP phones improve staff productivity as well, by allowing staff to report time in and out, look up medical information, locate teachers and students, broadcast emergency messages, and send automatic e-mail messages to parents if a student is absent.

Districts that enhance and streamline communications also significantly reduce costs, liberating funds that can be applied toward increasing educational excellence and thereby driving economic development. Sources of cost savings include replacing separate networks for voice, video, and data with a single converged network, and reducing long-distance charges and voice conferencing fees.

## IMPROVING PUBLIC SAFETY

The public feels safe when two conditions are met—when safety agencies such as police and fire departments can do their jobs effectively, and when citizen data remains private, a prerequisite for citizens to trust their government.

### Providing Better Protection of Life and Property

The mission of public safety is protecting life and property. Governments can create safer communities by delivering vital information to police, fire, and emergency medical services quickly and securely, both in the field and at their operating facilities. Public safety officials need various types of information to make critical decisions at the tactical, operational, and strategic levels. For example, the Town of Herndon, Virginia sends AMBER Alerts, about missing or abducted children within a 50-mile radius, to its employees' IP phones. "We suddenly have six times the number of eyes looking for abductees than we have police officers alone," says Bill Ashton, Herndon's director of IT. The town is planning to send other critical information to employee phones, including tornado watches, heightened terrorist alerts, or a major accident on a heavily trafficked highway. This attention to safety allows Herndon to deliver services with a positive community impact, distinguishing itself as a safer community.

Faced with flat or shrinking budgets, public safety agencies are discovering that network solutions can help them maintain or increase their level of service to the community without adding more personnel. For example, IP-based video surveillance and other high-speed information-sharing applications act as a "force multiplier"—they increase the probability of detecting and deterring criminal acts, and provide first responders with an earlier, better understanding of incidents such as crime scenes, accidents, or natural disasters so they can plan the most effective response. The network can also enable multiple public safety agency networks to interoperate, even if they use different communication devices or radio systems. Mission-critical information to a particular device—usually somewhere in the safety agency's building—now can be delivered to first responders and decision makers in any location, including on the field or in the squad car.

### Protecting the Network and Citizen Information

In a digital era, public safety also requires a network that is safe from online attacks and that safeguards the privacy of citizen data. Governments must ward against viruses and hacker attacks so that the network is always available for use by public safety personnel, and to avoid spending on restoring virus-infected computer systems. They also must ensure that sensitive citizen data remains private, an essential condition for citizens to trust their government. What's more, governments have a legal responsibility to shield their youngest citizens from inappropriate Internet content, in schools and libraries, with content-filtering solutions.

## EXPANDING THE SKILLED WORKFORCE

Government agencies can expand their pools of qualified applicants when they allow employees to securely access voice and data services from home. Working from home not only can improve the employee's quality of life, it also can improve quality of life for the community at large by reducing traffic congestion and pollution.

Another way that governments expand the community's skilled workforce is by providing distance-learning tools for adult and trade education, and for training displaced workers for new kinds of jobs. Citizens can log onto the network from home or from government offices to take interactive courses that prepare them to contribute to the local economy.

Governments strengthen the connection between education, student career goals, and the projected skill needs of local industries by delivering these network-based learning and training programs in partnership with industry. For example, Communications Workers of America and Stanly Community College of North Carolina teamed with Cisco Systems® to upgrade the skills of union members and transitioning U.S. military personnel. Their Workforce Training Program (WTP), a distance-learning program, combines online curriculum delivery and personalized one-on-one mentoring so that participants can earn the highly marketable credential of Cisco Certified Network Associate (CCNA®). Similarly, a team of students at Ft. Hays State University used their Cisco Networking Academy training to directly benefit the local business community. They organized, designed, and implemented a network upgrade for a local telephone company, helping attract new businesses and residents by upgrading service levels in the region.

## ATTRACTING BUSINESS INVESTMENT

Companies seek out cities that make it easy to do business. Cities with advanced networks can promote themselves to prospective businesses by providing online information about the advantages of doing business in the town and city, including tax policies, land-use policies, permit processes, and more. In addition to simply publishing information online, governments can capitalize on their networks to provide government-to-business services such as online permits and one-stop licensing.

A prime example is the City of Greensboro, North Carolina, which has increased its appeal for commercial and residential development by accelerating the building inspection process. In the past, inspectors would travel from home to the main downtown office twice daily to return phone calls, receive their daily assignments, and file reports. Greensboro improved its inspectors' productivity and expedited the approval process by providing inspectors with secure wireless access to daily schedules, reporting, and e-mail. Now, rather than spending valuable time driving to the main office, inspectors start their days in their vans, which are parked at any outdoor wireless access location. They securely log onto the city network, download the day's itinerary, check e-mail, and begin work. At any time during the day an inspector can upload reports, check e-mail, and

receive updates at any wireless access point, freeing time to do their jobs instead of drive. As a result of this process change, building approvals for the City of Greensboro are faster. “We have calculated that [the secure wireless network] frees up two hours per day per inspector, and we have 32 inspectors,” says Walter Simmons, code manager for the City of Greensboro. “That’s like getting eight new people without paying for them.” Faster approval is encouraging residential and commercial construction, a major contributor to economic development.

The Province of Turin, Italy attracts investment to its remote regions by delivering voice, video, and data services typically available only in major cities. The availability of broadband service has encouraged private IT companies to expand into remote areas, and new jobs are expected to result from the advanced service infrastructure. “We are counting on our investment in broadband having a stimulating effect,” says Roberto Grillando, head of information systems for the Province of Turin.

Greensboro and the Province of Turin are just two examples of how a government’s investment in its infrastructure can attract other investment by reducing the costs or otherwise increasing the appeal of doing business in the city. Other ways that cities attract businesses include faster processing at ports and customs, better network links within or across an industrial or commercial sector, and the scalability to accommodate more volume or deliver new services in response to business demand.

### ENCOURAGING CONSUMER SPENDING

Governments can encourage tourism, shopping, and dining by deploying wireless “hotspots” in strategic locations, making it easier for visitors to select and locate destinations. Case Western University in Cleveland, Ohio, for example, has extended its wireless network to University Circle, a concentration of cultural, research, healthcare, and government institutions in a 550-acre park near central Cleveland. Now the area’s more than one million visitors a year can use the network to find out about local events and attractions, where they’ll invest in the city’s economy. The 1100 locations that plan to connect to the network include government agencies such as the Greater Clevleand Regional Transit Authority, Hopkins International Airport, Cleveland Municipal School District, and neighborhood recreational centers, as well as museums, colleges, research centers, art and cultural institutions, and healthcare providers. Cleveland suburbs are also asking to connect their city halls, schools, and libraries. Thus, the large, high-speed metropolitan network will create “an asset to attract business and stimulate economic growth,” according to Lev Gonick, vice president of information technology services and chief information officer at Case.

A similar network solution is driving economic development in the City of Penticton, located in British Columbia’s scenic Okanagan Valley. With only 33,000 citizens and a small tax base, Penticton needs to be creative about improving city services for residents and visitors to the region. Its solution: a new fiber-optic network with Cisco IP Communications, purchased in partnership with a school district. Today the network contributes to the City of Penticton’s economy by creating a new source of revenue—for-fee wireless connectivity to businesses renting the convention center. What’s more, the Cisco IP Communications system has reduced phone bills and maintenance costs by $48,000 annually—money that the city can invest in programs that benefit residents and businesses.

### IMPROVING COMMUNITY QUALITY OF LIFE

Private sector businesses have created a consumer expectation for 24-hour online services. Now citizens expect the convenience of online services from government, as well. Rather than driving to government offices and standing in lines to obtain forms, they prefer to use the Internet to obtain and file forms. By offering convenient, online service delivery, governments can improve their citizens’ quality of life, thereby attracting residents, businesses, and investment dollars. Examples of online services include:

- Filing building permits
- Paying water and sewage bills
- Obtaining business license forms
- Paying taxes
- Finding pets through lost-and-found animal registries
- Reserving library books

- Paying tickets and fees
- Reserving group areas at parks and other public facilities
- Receiving online training and education at a time and place that works with busy work and family commitments
- Finding out about learning and professional development opportunities

Community quality of life also improves when communities offer wireless hotspots in public areas. Fredericton, the capital of Canada's eastern province of New Brunswick, offers its 80,000 citizens free Wi-Fi connectivity throughout most of the city, using overflow bandwidth from the city's co-op Internet service provider. Now citizens and visitors enjoy enhanced quality life—residents can work outdoors on laptops; tourists can check local entertainment, dining, and shopping; students at the two local universities can find a signal no matter where they want to study, work or play; and city workers can share information more easily. And since the city formed a non-profit telecommunications co-op in 2000, broadband prices have dropped by a factor of five, saving jobs and enabling the creation of new jobs. The city's initiative, dubbed Fred e-Zone, won the 2004 Canadian Information Productivity Award of Excellence for Innovation.

## ENABLING TECHNOLOGIES

Cisco Systems provides state and local governments with the network solutions they need to drive economic development in numerous ways. By taking advantage of their existing networks, governments can create responsive and resilient citizen-centric environments that connect constituents to important resources, creating a climate in which the economy can flourish. For example, Cisco IP Communications enables governments to securely and cost-effectively deliver voice, video, and data applications over a converged network, creating new ways to engage with citizens and industry. Cisco wireless networking solutions make it possible to access online services from more locations, making the community a more convenient place to live and work. And Cisco integrated security solutions help ensure that the network remains available to deliver essential services, and that sensitive citizen data remains private.

At the heart of the Connected Community is the Cisco Foundation Infrastructure, made up of Cisco routers, switches, optical solutions, and storage. With the Cisco Foundation Infrastructure in place, governments can expand their service reach to more locations and citizens; offer more services, more quickly; and facilitate interagency communications.

Cisco also offers advanced services to help governments develop business processes, apply technology to make them more efficient, and demonstrate expected return on investment (ROI). Governments can take advantage of services for planning, deploying, and managing solutions.

## CONCLUSION

The more a government offers its residents and businesses, the more attractive the community becomes. And when communities can attract and retain residents and businesses and help them prosper—through education, public safety, job training, and convenient services—the local economy thrives.

Governments around the world are boosting economic development today, without major capital investment, by delivering more and better services over their networks. Their successes showcase the breadth of possibilities. Fostering educational excellence by offering advanced courses in K–12 via live, interactive video. Improving public safety by sending live video of incidents to first responders. Facilitating partnerships between education and industry to offer online training in skills important to local industry. Providing citywide wireless access to make it easier for businesses to expand to new locations. Whatever the form they take, innovative, network-based services lay the groundwork for state and local governments to "do more with less."

For more information about Cisco solutions for Connected Communities, visit www.cisco.com/go/localgov.


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